

Dual

NEW TECH

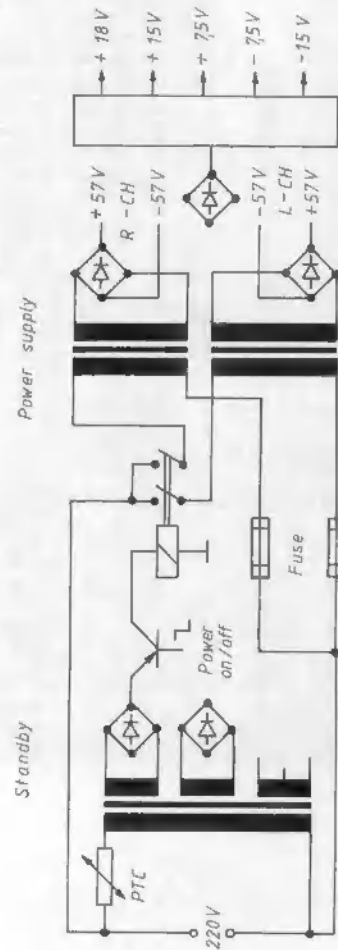
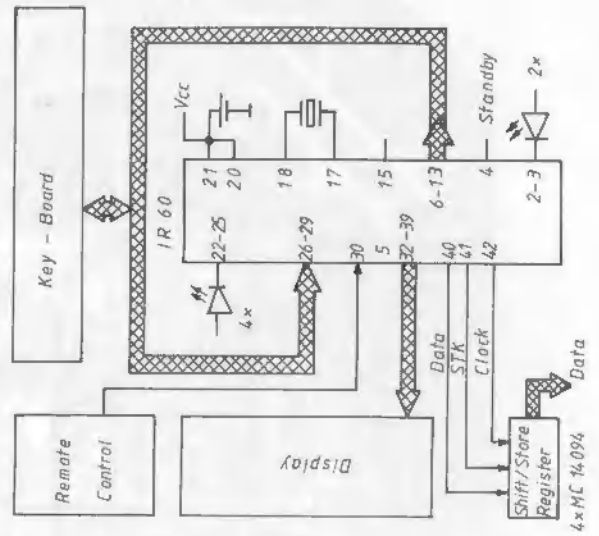
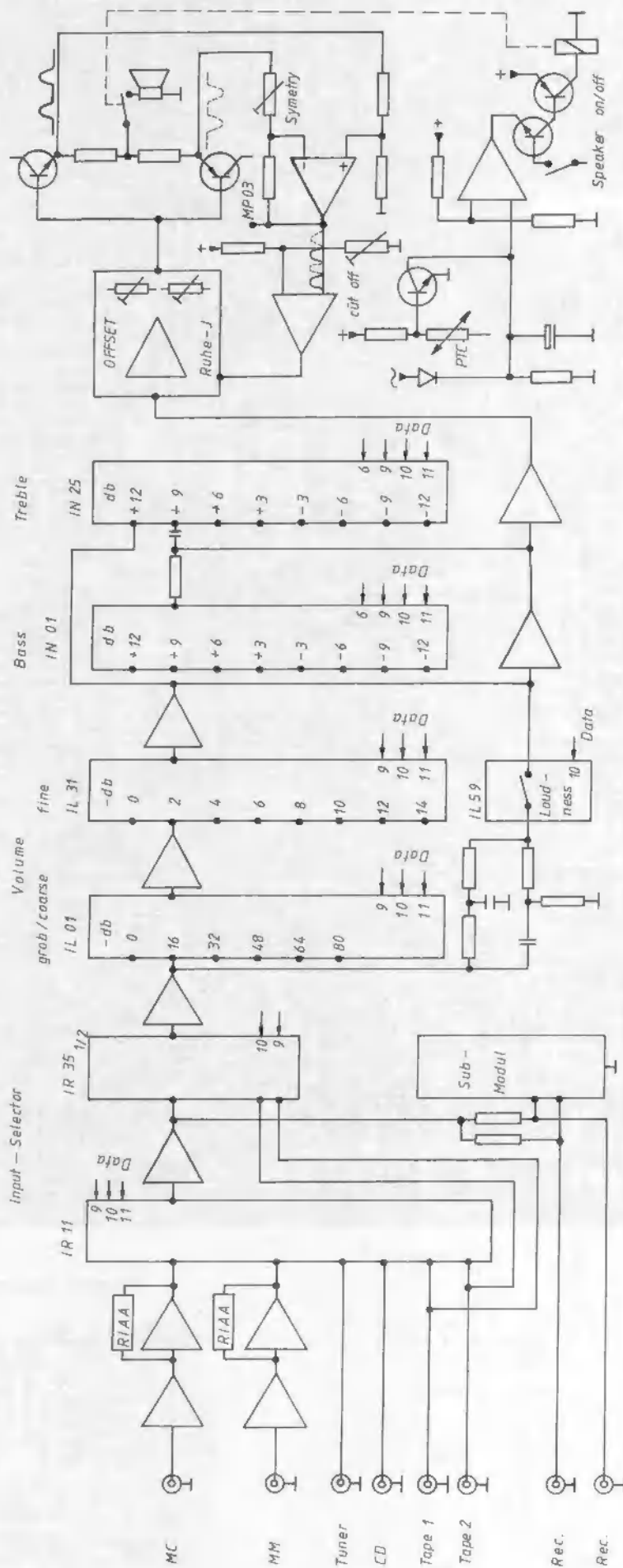


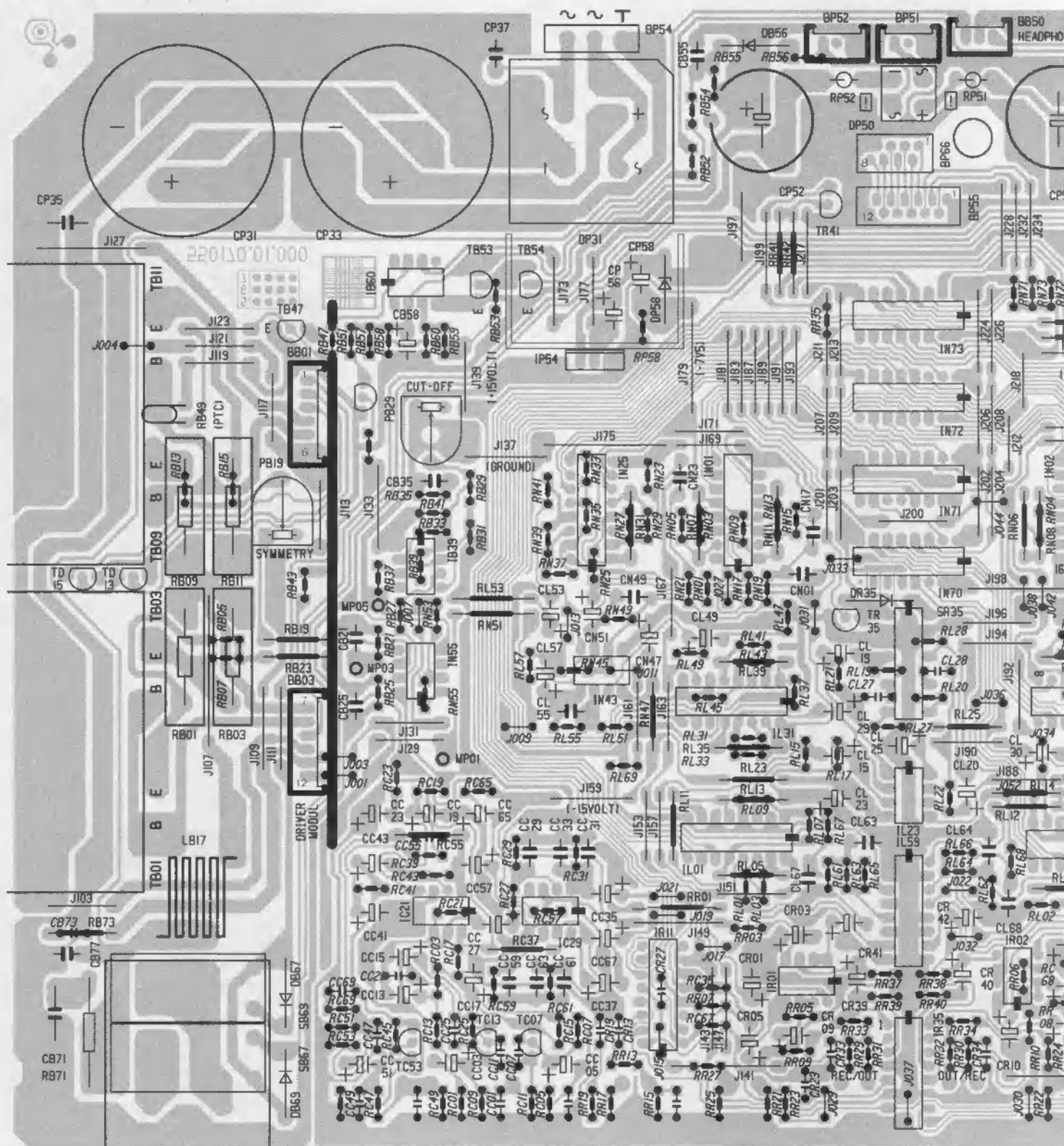
CV 440

Service-Anleitung Service Manual Instructions de Service

| Technische Daten (typische Werte) | Technical Data (typical value) | Caractéristiques techniques (valeur caractéristiques) | |
|--|--|---|--|
| Ausgangsleistung (DIN) Musikleistung Sinus-Dauerleistung | Rated output (DIN) Music power Rms continuous power output | Puissance de sortie (DIN) Puissance musicale Puissance efficace | 8 Ω 4 Ω 2 x 185 W 2 x 200 W 2 x 145 W 2 x 200 W |
| Klirrfaktor (bei Nennleistung – 6 dB) 20 Hz 1 kHz 20 kHz | Harmonic distortion (continuous power – 6 dB) 20 Hz 1 kHz 20 kHz | Taux de distorsion (puissance efficace – 6 dB) 20 Hz 1 kHz 20 kHz | 0,003 % 0,003 % 0,006 % |
| Leistungsbandbreite (DIN 45500) | Power band width (DIN 45500) | Bande passante (DIN 45500) | 5 Hz – 100 kHz |
| Übertragungsbereich 1 Watt – 3 dB Tuner, CD, Tape, Video Phono MM/MC | Frequency response 1 Watt – 3 dB Tuner, CD, Tape, Video Phono MM/MC | Bande passante 1 Watt – 3 dB Tuner, CD, Tape, Video Phono MM/MC | 3 Hz – 270 kHz 10 Hz – 50 kHz |
| Eingänge Tuner, CD, Tape 1, Tape 2/Video Phono MM Phono MC | Inputs Tuner, CD, Tape 1, Tape 2/Video Phono MM Phono MC | Entrées Tuner, CD, Tape 1, Tape 2/Video Phono MM Phono MC | 280 mV / 47 k Ω 3 mV / 47 k Ω 250 μ V / 5 k Ω |
| Ausgänge Druckklemmen für zwei Lautsprecherpaare, Ausgang 1 und Ausgang 2 schaltbar 1-Koaxialbuchse 1/4 inch für Kopfhörer 1-Line-Ausgang an Tape 1 1-Line-Ausgang an Tape 2/Video | Outputs Press-type terminal strips for two sets of speakers, output 1 and output 2 switched 1 coaxial jack 1/4 inch for headphone 1 Line output to Tape 1 1 Line output to Tape 2/Video | Sorties Barres à ressort pour deux paires de hauts-parleurs, sortie 1 et sortie 2 commutables 1 prise coaxiale de 1/4 inch le raccordement du casque-écouter 1 sortie Line sur la prise Tape 1 1 sortie Line sur la prise Tape 2/Video | 8 – 16 Ohm 8 – 2000 Ohm 280 mV / 2,5 k Ω 280 mV / 2,5 k Ω |
| Fremdspannungsabstand (DIN 45500) bezogen auf Nennleistung Tuner, CD, Tape 1, Tape 2/Video Phono MM Phono MC bezogen auf 2 x 50 mW Tuner, CD, Tape 1, Tape 2, Monitor Phono MM Phono MC | Signal-to-Noise ratio (DIN 45500) related to nominal output Tuner, CD, Tape 1, Tape 2/Video Phono MM Phono MC related to 2 x 50 mW Tuner, CD, Tape 1, Tape 2, Monitor Phono MM Phono MC | Rapport/signal bruit (DIN 45500) rapporté à la nominale Tuner, CD, Tape 1, Tape 2/Video Phono MM Phono MC rapporté à 2 x 50 mW Tuner, CD, Tape 1, Tape 2, Monitor Phono MM Phono MC | 100 dB 75 dB 62 dB 70 dB 68 dB 62 dB |
| Geräuschspannung Tuner, CD, Tape 1, Tape 2/Video Phono MM Phono MC | Noise voltage Tuner, CD, Tape 1, Tape 2/Video Phono MM Phono MC | Tension perturbatrice Tuner, CD, Tape 1, Tape 2/Video Phono MM Phono MC | 103 dB 80 dB 70 dB |
| Übersprechdämpfung bei 1000 Hz zwischen den Kanälen zwischen den Eingängen | Cross-talk attenuation at 1.000 Hz between the channels between the inputs | Rapport de diaphonie à 1000 Hz entre les canaux entre les entrées | 75 dB 75 dB |
| Dämpfungsfaktor (8 Ohm) | Damping factor (8 ohms) | Facteur d'amortissement (8 ohms) | 2 kHz / 180 20 kHz / 160 |
| Regelbereiche Volume (2 dB-Schritte) Pre Volume (2 dB-Schritte) Balance (2 dB-Schritte) Höhen (3 dB-Schritte) Bässe (3 dB-Schritte) | Control range Volume (2 dB steps) Pre Volume (2 dB steps) Balance (2 dB steps) Treble (3 dB steps) Bass (3 dB steps) | Plage de réglage Volume (pas de 2 dB) Pre Volume (pas de 2 dB) Balance (pas de 2 dB) Treble (pas de 3 dB) Bass (pas de 3 dB) | 80 dB 20 dB 18 dB \pm 12 dB \pm 12 dB |
| Leistungsaufnahme Standby-Betrieb Nennleistung an 8 Ω | Power consumption Standby nominal power (8 Ω) | Consommation de puissance à vide puissance nominale (8 Ω) | ca. 5 W ca. 480 W |
| Netzspannungen | Line voltages | Tensions secteur | 230 V |

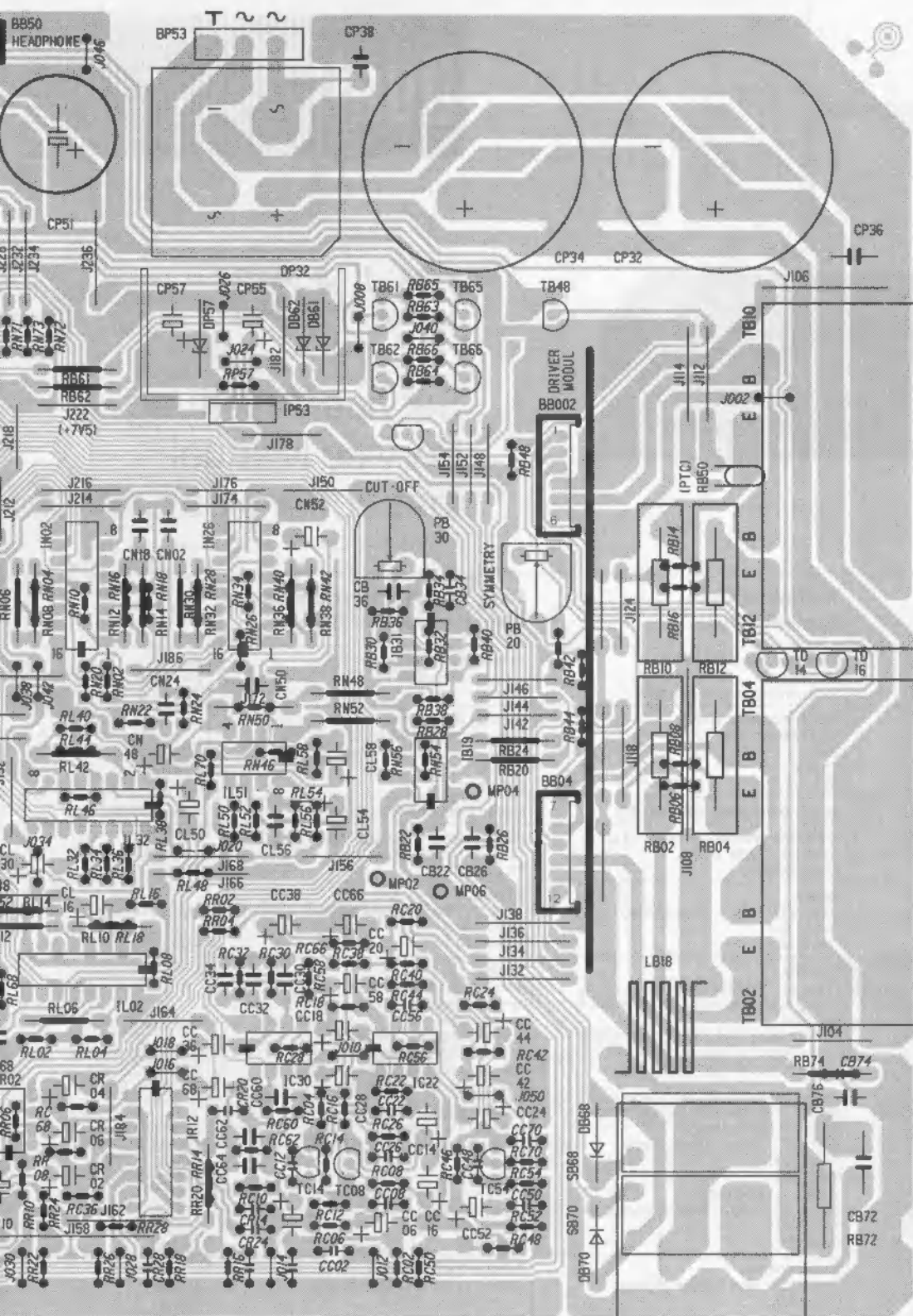
Dual GmbH · Postfach 1144 · 7742 St. Georgen/Schwarzwald



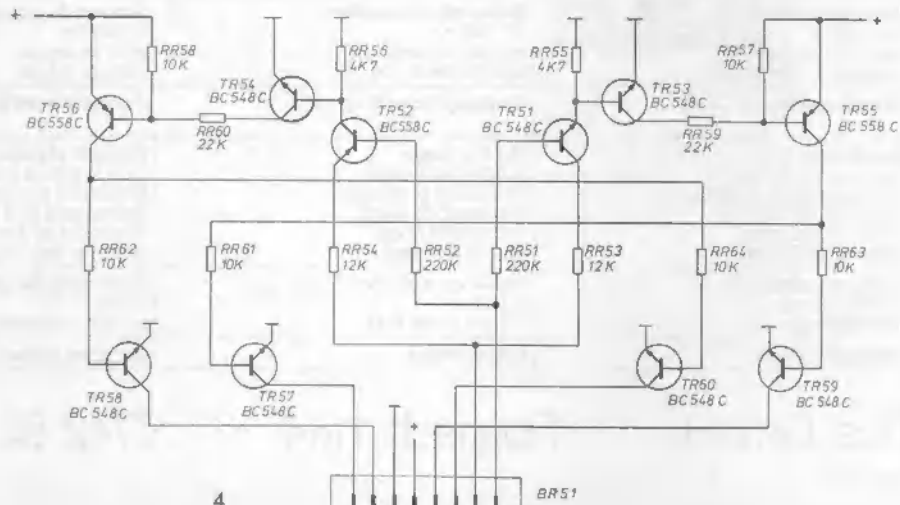
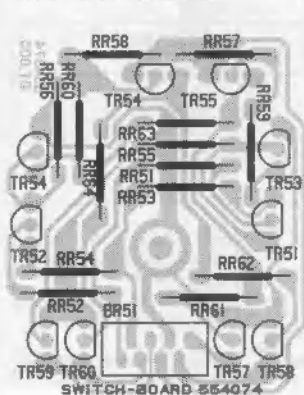


SUB

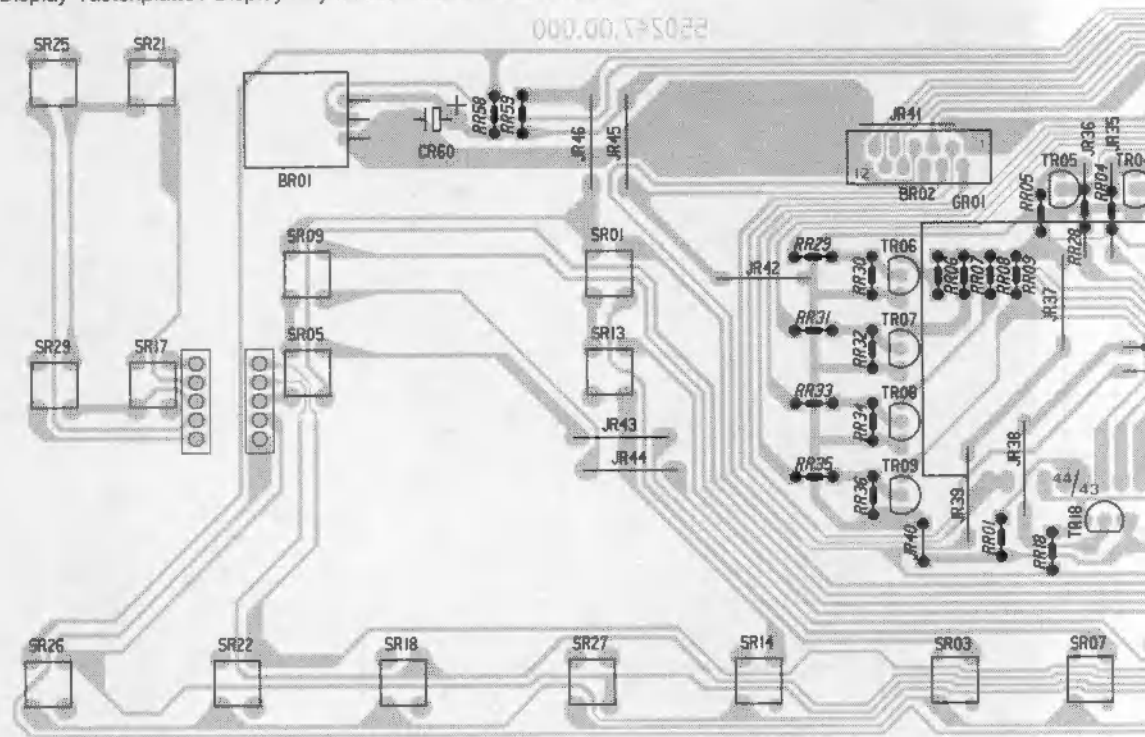
TR54
TR52
TR59



SUB RMB 1600 MD

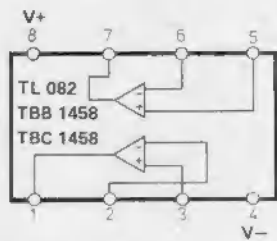
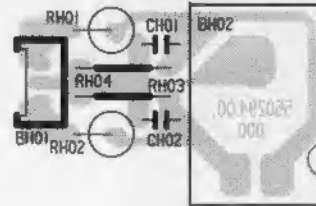
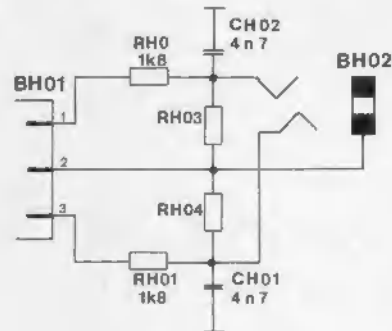




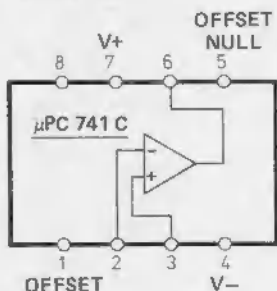


Stand by

Kopfhörerplatte / Head phone board /
Platine de phones



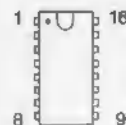
LM 393
LM 833
RC 4558



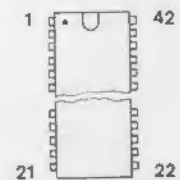
MC 1741



LM 393
LM 833
RC 4558



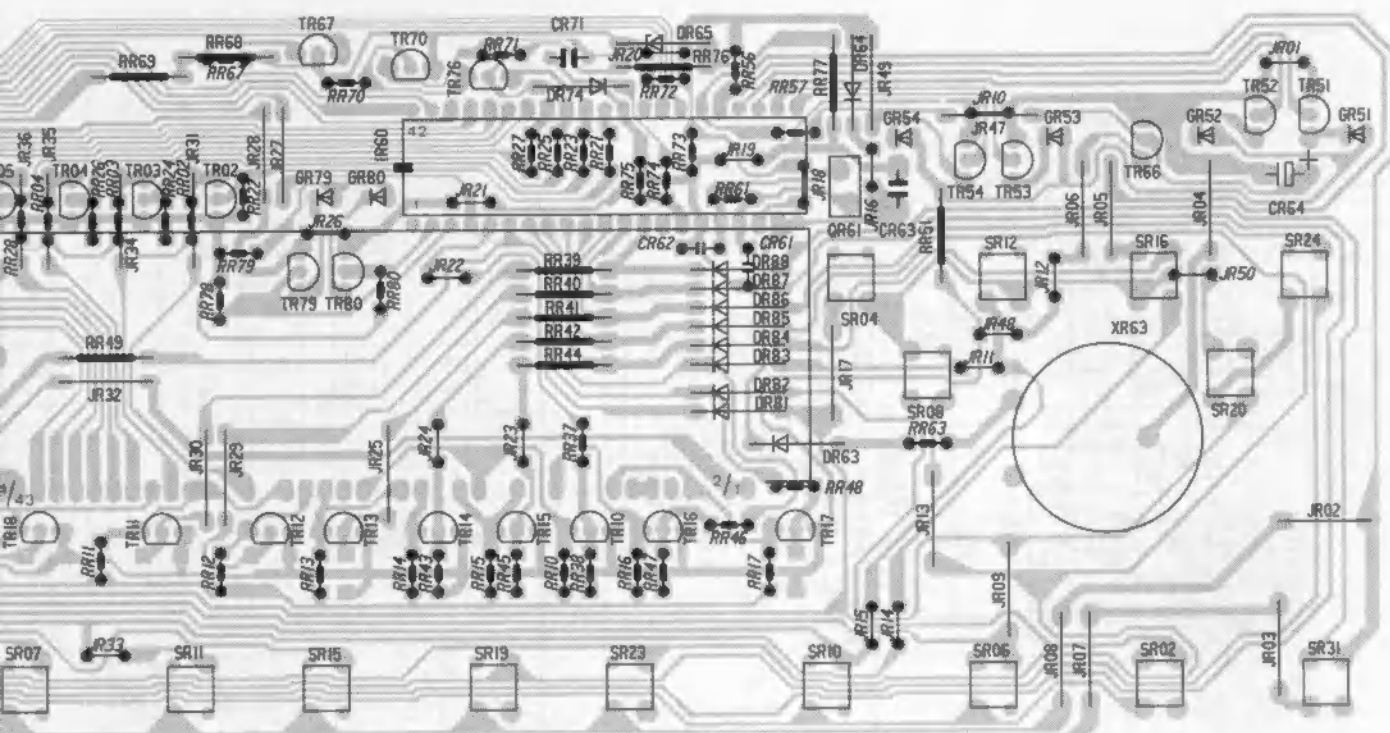
MC 14051
MC 14052



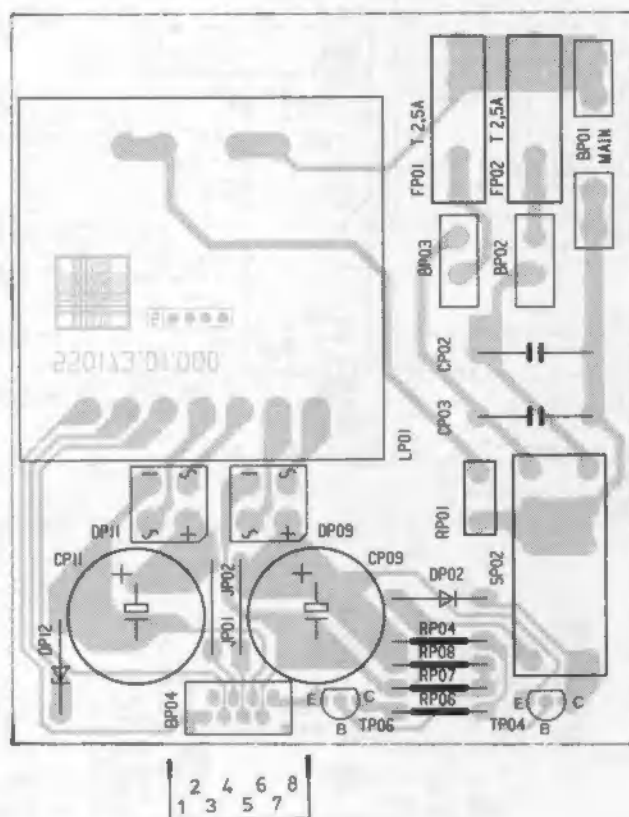
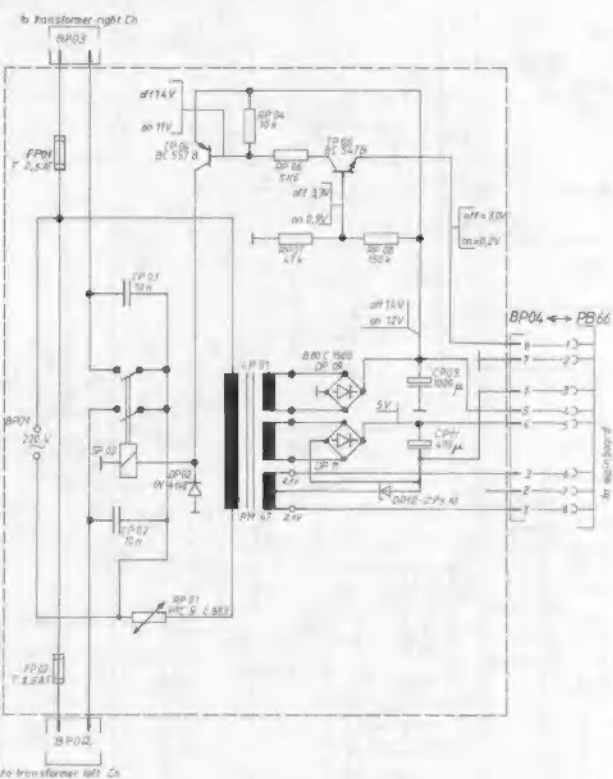
HD 44840



BC 32
BC 32
BC 33
BC 54
BC 54
BC 54



Stand-by-platte / Stand by board / Platine de secteur



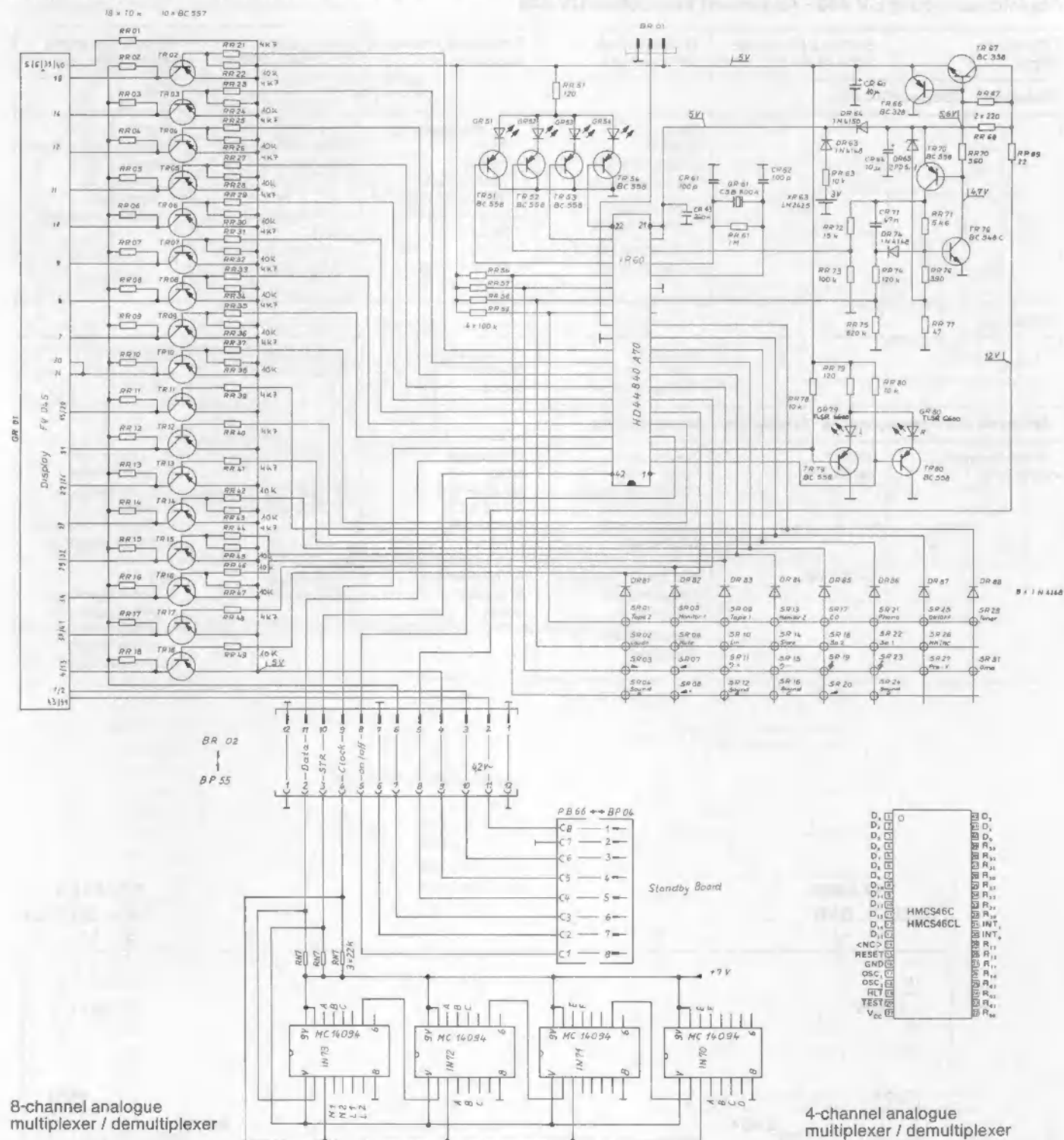
BC 327 BC 550
BC 328 BC 557
BC 338 BC 558
BC 546 BF 423
BC 547 BF 869
BC 548 BF 870

MC 7815

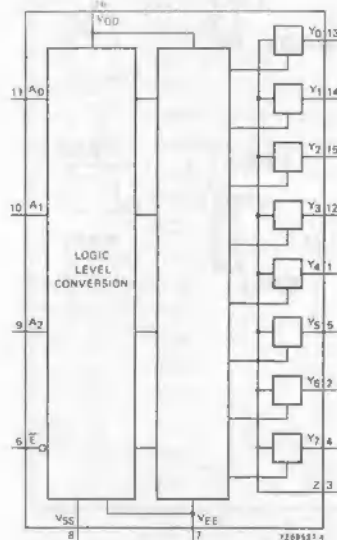
BF 869
BF 870

BDV 66 D
BDV 67 D

MJE 340
MJE 350



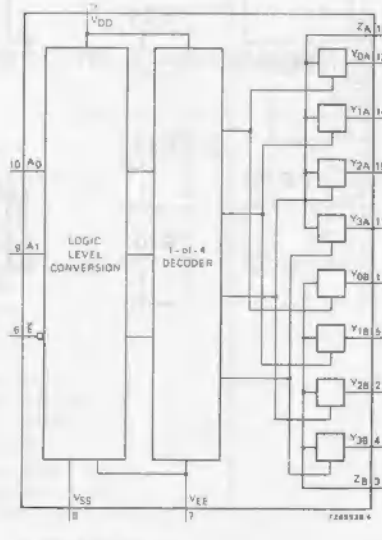
8-channel analogue multiplexer / demultiplexer



MC 14051

| Input Pin | | | Input Channel Pin |
|-----------|----|----|-------------------|
| 9 | 10 | 11 | 13 |
| L | L | L | 14 |
| L | L | H | 15 |
| L | H | L | 12 |
| H | L | L | 1 |
| H | L | H | 5 |
| H | H | L | 2 |
| H | H | H | 4 |

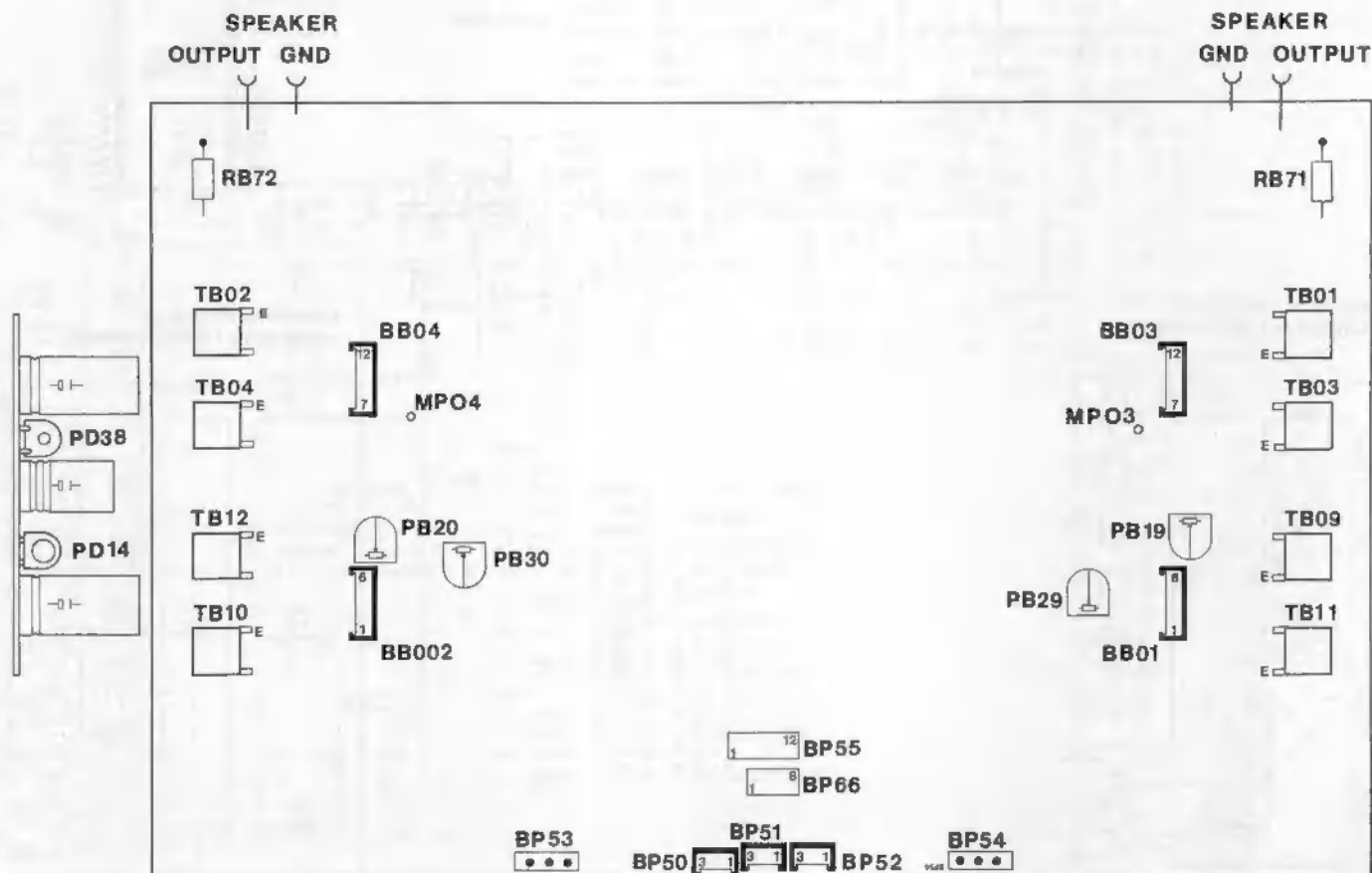
4-channel analogue multiplexer / demultiplexer

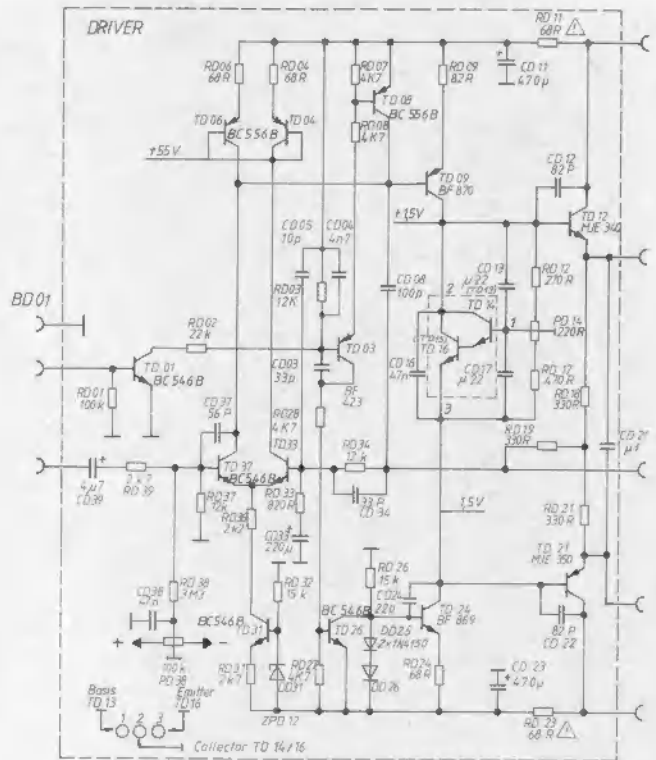
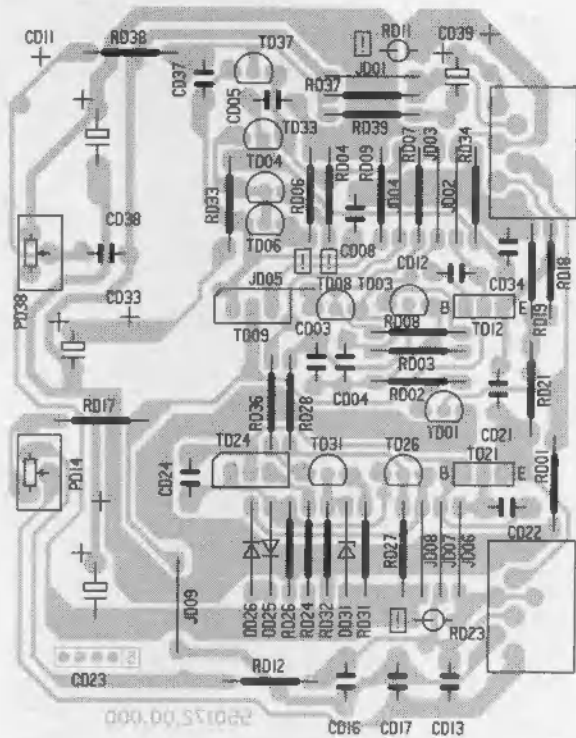


MC 14052

Abgleichanleitung CV 440 · Alignment Instruction CV 440

| Signalquelle Signal source | Einstellung Signalquelle Signal source adjustment | Einstellung Gerät Unit adjustment | Anzeigegerät Anschluß Indicator connection | Abgleichposition Adjustment position | Abgleich, Bemerkung Alignment, Remarks |
|--|--|---|--|--|---|
| Ruhestrom · Quiescent Current | | | | | |
| | | Power: On Tuner: On Volume: Minimum oder/or Muting on – ohne Last-R – without load-R – kalter Zustand – cold-state | DC-Voltmeter an/to RB 71 Emitter: ↑ TB 01 + TB 09 ↓ TB 03 + TB 11 RB 72 Emitter: ↑ TB 02 + TB 10 ↓ TB 04 + TB 12 | PD 14 rechter Kanal (R-CH) right channel (R-CH) PD 14 linker Kanal (L-CH) left channel (L-CH) | 15 mV 15 mV + 15 mV = 30 mV (Differenz ± 50 % – zwischen den Transistoren – between transistors) |
| Offset | | | | | |
| | | Power: On Tuner: On Volume: Minimum | DC-Voltmeter an/to Speaker output | PD 38 (L-CH) PD 38 (R-CH) | 0 mV (± 5 mV) |
| Symmetrie und Strombegrenzung · Symmetry and Current Limiting | | | | | |
| NF/AF-Generator an/to Tuner | 1 kHz ca. 300 mV | Power: On Tuner: On Volume: Maximum Speaker: 8 Ohm Lastwiderstand Load-resistor | Oscilloscope an/to: MP 03 (R-CH) MP 04 (L-CH) Speaker GND | PB 19 (R-CH) PB 20 (L-CH) | – auf gleich hohe Sinushalbwelle, – to same sinus- halfwave – (doppelte Frequenz) – (double frequency) |
| | 0–200 mV | Speaker: 2 Ohm/100 W Lastwiderstand Load-resistor Kalter Zustand Cold-state | NF/AF-Voltmeter to Speaker output | PB 29 (R-CH) PB 30 (L-CH) | 16 V – Strombegrenzung – gerade noch nicht abgeschaltet, – current limiting – just not switches off |





Prozessor HD 44840 A 70 (IR 60)- Pinbelegung · Pin arrangement

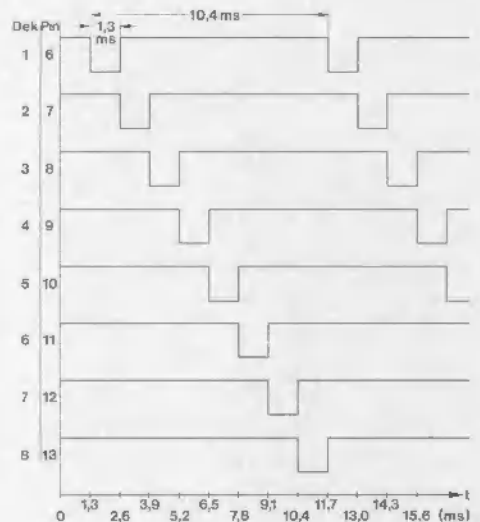
Pin Signal

| | |
|---------|--|
| 1 | No connection |
| 2 → | Balance L-CH |
| 3 → | Balance R-CH |
| 4 → | ON = H, OFF = L |
| 5 → | TR 10 Display |
| 6 → | Pulse Dekade 1 |
| 7 → | Pulse Dekade 2 |
| 8 → | Pulse Dekade 3 |
| 9 → | Pulse Dekade 4 |
| 10 → | Pulse Dekade 5 |
| 11 → | Pulse Dekade 6 |
| 12 → | Pulse Dekade 7 |
| 13 → | Pulse Dekade 8 |
| 14 | No connection |
| 15 ← | Reset |
| 16 | GND |
| 17 | Quarz |
| 18 | Quarz |
| 19 ← | HTL 5 V |
| 20 +5 V | V _{cc} |
| 21 +5 V | V _{cc} |
| 22 → | TR 54 Sound 1 |
| 23 → | TR 53 Sound 2 |
| 24 → | TR 52 Sound 3 |
| 25 → | TR 51 Sound 4 |
| 26 ← | Volume ±, Sound 1, 2, 3, 4 |
| 27 ← | Balance L/R-CH, Bass ±, Treble ±, Pre-Volume |
| 28 ← | Loudn., Mute, Lin, Store, Sp. 2, Sp. 1, MM/MC |
| 29 ← | Tape 2, Monitor 1, Tape 1, Monitor 2, CD, Phono, ON/OFF, Tuner |
| 30 ← | Remote Control |
| 31 | GND |
| 32 → | TR 02 |
| 33 → | TR 03 |
| 34 → | TR 04 |
| 35 → | TR 05 |
| 36 → | TR 06 |
| 37 → | TR 07 |
| 38 → | TR 08 |
| 39 → | TR 09 |
| 40 → | Clock = Pin 3 |
| 41 → | Data = Pin 2 |
| 42 → | STR = Pin 1 |

Bezeichnung · Signification:

| | |
|-----|--------------------|
| 2 ← | Input |
| 7 → | Output |
| ┌ | Signal HIGH active |
| └ | Signal LOW active |

Pulse Diagram



Ersatzteile · Replacement parts · Pièces détachées CV 440

| Pos. | Art.-Nr. | Stck | Bezeichnung |
|------|----------|------|-----------------|
| 1 | 280 960 | 1 | Frontblende |
| 2 | 279 478 | 1 | Fenster |
| 3 | 279 481 | 1 | Blende |
| 5 | 279 480 | 1 | Feder |
| 6 | 280 852 | 1 | Riegel |
| 7 | 279 482 | 6 | Knopf |
| 8 | 279 483 | 9 | Knopf |
| 9 | 280 963 | 1 | Klappe |
| 10 | 279 486 | 1 | Feder |
| 11 | 279 896 | 4 | Fuss kpl. |
| 12 | 279 489 | 1 | Gehäuseblech |
| 13 | 279 474 | 1 | Rückwand |
| 14 | 279 472 | 2 | Netztrafo |
| 15 | 279 476 | 1 | Netzbuchse |
| BH 2 | 279 479 | 1 | Kopfhörerbuchse |

Ersatzteile · Replacement parts · Pièces détachées · CV 440

| Pos. | Art.-Nr. | Stck | Bezeichnung |
|-------|----------|------|-----------------------------|
| 30 | 279 475 | 1 | Grundplatte |
| 31 | 279 510 | 5 | Cinch-Buchsenleiste |
| 32 | 279 511 | 2 | Anschlußklemme |
| CP 31 | 279 495 | 4 | Elyt-Kondensator 10 MY/63 V |
| bis | | | |
| CP 34 | 279 495 | 4 | Elyt-Kondensator 10 MY/63 V |
| DB 56 | 223 906 | 5 | Diode 1 N 4148 |
| DB 61 | 279 496 | 2 | Diode ZPD 5V1 |
| DB 62 | 279 496 | 2 | Diode ZPD 5V1 |
| DB 67 | 223 906 | 5 | Diode 1 N 4148 |
| bis | | | |
| DB 70 | 223 906 | 5 | Diode 1 N 4148 |
| DP 21 | 279 497 | 1 | Gleichrichter B 80 C 1500 |
| DB 23 | 279 498 | 2 | Diode ZPD 7V5 |
| DP 27 | 279 498 | 2 | Diode ZPD 7V5 |
| DP 31 | 279 499 | 2 | Gleichrichter D5 FB 20 |
| DP 32 | 279 499 | 2 | Gleichrichter D5 FB 20 |
| DP 50 | 279 497 | 1 | Gleichrichter B 80 C 1500 |
| DP 57 | 279 498 | 4 | Diode ZPD 7V5 |
| DP 58 | 279 498 | 4 | Diode ZPD 7V5 |
| DR 35 | 223 906 | 6 | Diode 1 N 4148 |
| IB 19 | 279 500 | 7 | IC LM 833 |
| IB 31 | 268 409 | 2 | IC LM 393 P |
| IB 39 | 268 409 | 2 | IC LM 393 P |
| IB 60 | 279 501 | 1 | IC MC 1741 CP 1 |
| IC 21 | 236 299 | 4 | IC RC 4558 D |
| IC 22 | 236 299 | 4 | IC RC 4558 D |
| IC 29 | 236 299 | 4 | IC RC 4558 D |
| IC 30 | 236 299 | 4 | IC RC 4558 D |
| IL 1 | 279 502 | 8 | IC MC 14051 BCP |
| IL 2 | 279 502 | 8 | IC MC 14051 BCP |
| IL 23 | 279 500 | 7 | IC LM 833 |
| IL 31 | 279 502 | 8 | IC MC 14051 BCP |
| IL 32 | 279 502 | 8 | IC MC 14051 BCP |
| IL 51 | 279 500 | 7 | IC LM 833 |
| IL 59 | 279 503 | 2 | IC MC 14052 BCP |
| IN 1 | 279 502 | 10 | IC MC 14051 BCP |
| IN 2 | 279 502 | 10 | IC MC 14051 BCP |
| IN 25 | 279 502 | 10 | IC MC 14051 BCP |
| IN 26 | 279 502 | 10 | IC MC 14051 BCP |
| IN 43 | 279 500 | 7 | IC LM 833 |
| IN 55 | 279 500 | 7 | IC LM 833 |
| IN 70 | 276 039 | 4 | IC MC 14094 BCP C-MOS |
| bis | | | |
| IN 73 | 276 039 | 4 | IC MC 14094 BCP C-MOS |
| IP 53 | 238 347 | 3 | IC MC 7815 |
| IP 54 | 280 491 | 1 | IC MC 7915 CT |
| IR 1 | 279 500 | 7 | IC LM 833 |
| IR 2 | 279 500 | 7 | IC LM 833 |
| IR 11 | 279 502 | 10 | IC MC 14051 BCP |
| IR 12 | 279 502 | 10 | IC MC 14051 BCP |
| IR 35 | 279 503 | 2 | IC MC 14052 BCP |
| PB 19 | 279 504 | 2 | Steller 1 kΩ |
| PB 20 | 279 504 | 2 | Steller 1 kΩ |
| PB 29 | 279 505 | 2 | Steller 470 Ω |
| PB 30 | 279 505 | 2 | Steller 470 Ω |
| RB 49 | 279 506 | 2 | Thermoschalter |
| RB 50 | 279 506 | 2 | Thermoschalter |
| SB 67 | 279 507 | 4 | Relais AZ 732 |
| SB 70 | 279 507 | 4 | Relais AZ 732 |
| SR 35 | 279 529 | 1 | Relais |
| TB 1 | 279 508 | 4 | Transistor BDV 67 D |
| bis | | | |
| TB 4 | 279 508 | 4 | Transistor BDV 67 D |
| TB 9 | 279 509 | 4 | Transistor BDV 66 ■ |
| bis | | | |
| TB 12 | 279 509 | 4 | Transistor BDV 66 D |
| TB 48 | 244 891 | 8 | Transistor BC 547 B |
| TB 53 | 244 891 | 8 | Transistor BC 547 B |
| TB 54 | 244 891 | 8 | Transistor BC 547 B |
| TB 61 | 244 891 | 8 | Transistor BC 547 B |
| TB 62 | 244 891 | 8 | Transistor BC 547 B |
| TB 65 | 224 729 | 2 | Transistor BC 327 |
| TB 66 | 224 729 | 2 | Transistor BC 327 |
| TC 7 | 280 964 | 6 | Transistor BC 650 S |
| TC 8 | 280 964 | 6 | Transistor BC 650 S |
| TC 13 | 280 964 | 6 | Transistor BC 650 S |
| TC 14 | 280 964 | 6 | Transistor BC 650 S |
| TC 53 | 280 964 | 6 | Transistor BC 650 S |
| TC 54 | 280 964 | 6 | Transistor BC 650 S |
| TD 14 | 240 782 | 2 | Transistor BC 546 B |
| bis | | | |
| TD 16 | 240 782 | 2 | Transistor BC 546 ■ |

| Pos. | Art.-Nr. | Stck | Bezeichnung |
|-------|----------|------|-----------------------------|
| TR 35 | 244 891 | 1 | Transistor BC 547 B |
| TR 41 | 244 891 | 1 | Transistor BC 547 B |
| TR 51 | 244 715 | 7 | Transistor BC 548 C |
| TR 52 | 276 032 | 3 | Transistor BC 558 C |
| TR 53 | 244 715 | 7 | Transistor BC 548 C |
| TR 54 | 244 715 | 7 | Transistor BC 548 C |
| TR 55 | 276 032 | 3 | Transistor BC 558 C |
| TR 56 | 276 032 | 3 | Transistor BC 558 C |
| TR 57 | 244 715 | 7 | Transistor BC 548 C |
| bis | | | |
| TR 60 | 244 715 | 7 | Transistor BC 548 C |
| 40 | 279 484 | 1 | Display/Tastenplatte |
| DR 63 | 223 906 | 10 | Diode 1 N 4148 |
| DR 64 | 279 521 | 1 | Diode 1 N 4150 |
| DR 65 | 279 496 | 1 | Diode ZPD 5V1 |
| DR 74 | 223 906 | 10 | Diode 1 N 4148 |
| DR 81 | 223 906 | 10 | Diode 1 N 4148 |
| bis | | | |
| DR 88 | 223 906 | 10 | Diode 1 N 4148 |
| GR 1 | 279 522 | 1 | Display FV-045 |
| GR 51 | 279 523 | 6 | LED TLHR 6200 |
| bis | | | |
| GR 54 | 279 523 | 6 | LED TLHR 6200 |
| GR 79 | 280 970 | 2 | LED TLSR 5601 |
| GR 80 | 280 970 | 2 | LED TLSR 5601 |
| IR 60 | 279 524 | 1 | IC UP HD 44840 A70 HMSC 4 |
| QR 61 | 279 525 | 1 | Keramikfilter 800 kHz |
| SR 1 | 276 045 | 29 | Schalter |
| bis | | | |
| SR 31 | 276 045 | 29 | Schalter |
| TR 2 | 244 892 | 17 | Transistor BC 557 B |
| bis | | | |
| TR 18 | 244 892 | 17 | Transistor BC 557 B |
| TR 51 | 277 937 | 7 | Transistor BC 558 |
| bis | | | |
| TR 54 | 277 937 | 7 | Transistor BC 558 |
| TR 66 | 231 062 | 1 | Transistor BC 328 |
| TR 67 | 238 894 | 1 | Transistor BC 338 |
| TR 70 | 277 937 | 7 | Transistor BC 558 |
| TR 76 | 244 715 | 1 | Transistor BC 548 C |
| TR 79 | 277 937 | 7 | Transistor BC 558 |
| TR 80 | 277 937 | 7 | Transistor BC 558 |
| XR 63 | 279 527 | 1 | Akku LM 2425 |
| 50 | 279 473 | 1 | Standby-Platte |
| DP 2 | 223 906 | 1 | Diode 1 N 4148 |
| DP 9 | 279 497 | 2 | Gleichrichter ■ 80 C 1500 |
| DP 11 | 279 497 | 2 | Gleichrichter B 80 C 1500 |
| DP 12 | 280 969 | 1 | Diode ZPY 10/BZX 85/C10 |
| DR 2 | 223 906 | 1 | Diode 1 N 4148 |
| FP 1 | 247 842 | 2 | Sicherung 2,5 A/250 V T |
| FP 2 | 247 842 | 2 | Sicherung 2,5 A/250 V T |
| LP 1 | 280 965 | 1 | Trafo |
| RP 1 | 280 967 | 1 | Kaltleiter C 883 |
| SP 2 | 280 966 | 1 | Relais 12 V |
| TP 4 | 244 892 | 2 | Transistor BC 557 ■ |
| TP ■ | 244 891 | 1 | Transistor BC 547 B |
| 60 | 280 492 | 1 | Treiberplatte |
| DD 25 | 279 521 | 2 | Diode 1 N 4150 |
| DD 26 | 249 521 | 2 | Diode 1 N 4150 |
| DD 31 | 249 857 | 1 | Diode ZPD 12 |
| PD 14 | 279 520 | 1 | Steller 220 kΩ |
| PD 38 | 280 968 | 1 | Steller 100 kΩ |
| TD 1 | 240 782 | 4 | Transistor BC 546 ■ |
| TD 3 | 279 515 | 1 | Transistor BF 423 |
| TD 4 | 262 496 | 3 | Transistor BC 556 B |
| TD 6 | 262 496 | 3 | Transistor BC 556 B |
| TD 8 | 262 496 | 3 | Transistor BC 556 ■ |
| TD 9 | 279 516 | 1 | Transistor BF 870 |
| TD 12 | 279 517 | 1 | Transistor MJE 340 |
| TD 21 | 279 518 | 1 | Transistor MJE 350 |
| TD 24 | 279 519 | 1 | Transistor BF 869 |
| TD 26 | 240 782 | 4 | Transistor BC 546 ■ |
| TD 31 | 240 782 | 4 | Transistor BC 546 B |
| TD 33 | 240 782 | 4 | Transistor BC 546 B |
| TD 37 | 240 782 | 4 | Transistor BC 546 B |
| 70 | 279 490 | 1 | IR-Empfänger |
| | 279 491 | 1 | Netzkabel |
| | 279 830 | 1 | Bedienungsanleitung CV 440 |
| | 279 493 | 1 | Faltschachtel |
| | 279 494 | 2 | Seitenenteil |

Änderungen vorbehalten! Subject to change! Sous réserve de modification!